STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

Introduction

An **Incident** is an unplanned event that results in loss or harm including:

- Personal (injury/illness)
- Environmental,
- Asset or equipment.

Example: Employee slips and falls on icy walkway and injures wrist.

Purpose

The purpose of an incident investigation is to apply appropriate corrective actions that prevent reoccurrence.

Scope

An incident investigation shall in a timely fashion:

- Retrieve and examine all the details of an incident
- Identify root causes and contributory factors
- Initiate corrective action to prevent an occurrence or reoccurrence
- Assign responsibility for corrective actions
- Provide data for statistical trending and tracking (measurement)
- Be appropriately communicated across the business to allow others to plan, organize, and manage risk associated with tasks more effectively.

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

Expectations

Employees are required to:

- Report all injuries and incidents that have the potential to injure people or damage equipment, to their Supervisor on the same shift.
- Seek timely treatment for any injuries.
- Participate in the investigation process providing information and assist in identifying possible solutions.
- Freeze (isolate, rope off) the scene if required.

Supervisors are required to:

- Immediately assess and isolate any high or unknown risk areas associated with an incident.
- Encourage reporting of all incidents that have or are capable of causing harm.
- Ensure injured employees receive timely treatment.
- Initiate an investigation to establish possible causes. Gain input from others to take the most effective corrective action.
- Utilize the Incident Notification Protocol based on potential severity criteria.
- Freeze (isolate, rope off) the scene if required.
- Contact the Mines Inspector if required

SH&E Committees are expected to:

- Participate in the investigation process as required.
- Assist in the communication of corrective actions to all employees.
- Coach supervisors/employees on the process of incident investigations.
- Provide analysis of incident data to determine trends

Superintendents are expected to:

- Ensure front line supervisors understand and utilize the incident investigation process.
- Ensure corrective actions are adequate and completed in appropriate time.
- Provide adequate resources for completion of corrective actions.
- Coach the line organization on the effective use of the incident investigation process.

- Participate in investigations where required.

Managers are expected to:

- Implement the incident investigation process.
- Measure and track the effectiveness of the incident investigation process.
- Provide adequate resources for the completion of corrective actions
- Ensure corrective actions are referred to the appropriate authority level.
- Coach the line organization on the effective use of the incident investigation process.
- Ensure all required employees are involved in the process.
- In consultation with Department Worker Rep, determine the need for an advanced investigation team.
- Notify their respective General Manager when a Lost Time Injury (LTI) is suspected or when damage to equipment or process loss over 50K is estimated.

General Managers are required to:

- Provide strategic direction for utilization of the incident investigation process.
- Measure and track the effectiveness of the incident investigation process.
- Provide adequate resources for the completion of corrective actions.

SH&E Co-Chairs are required to:

- Support the incident investigation process through the effective utilization of SH&E committee members.
- Review significant incidents at committee meetings for quality and effectiveness.
- Provide resources when requested for the incident investigation process.

Divisional SH&E Co-Chairs are required to:

- Support the incident investigation process through the effective utilization of SH&E committee members.
- Review significant incidents at committee meetings for quality and effectiveness.
- Provide resources when requested for the incident investigation process.

SH&E Manager is required;

- To ensure adequate incident investigation systems are implemented.
- Allocate resources to audit effectiveness of the incident investigation system.
- Provide metrics for the measurement of the effectiveness of the incident investigation process.

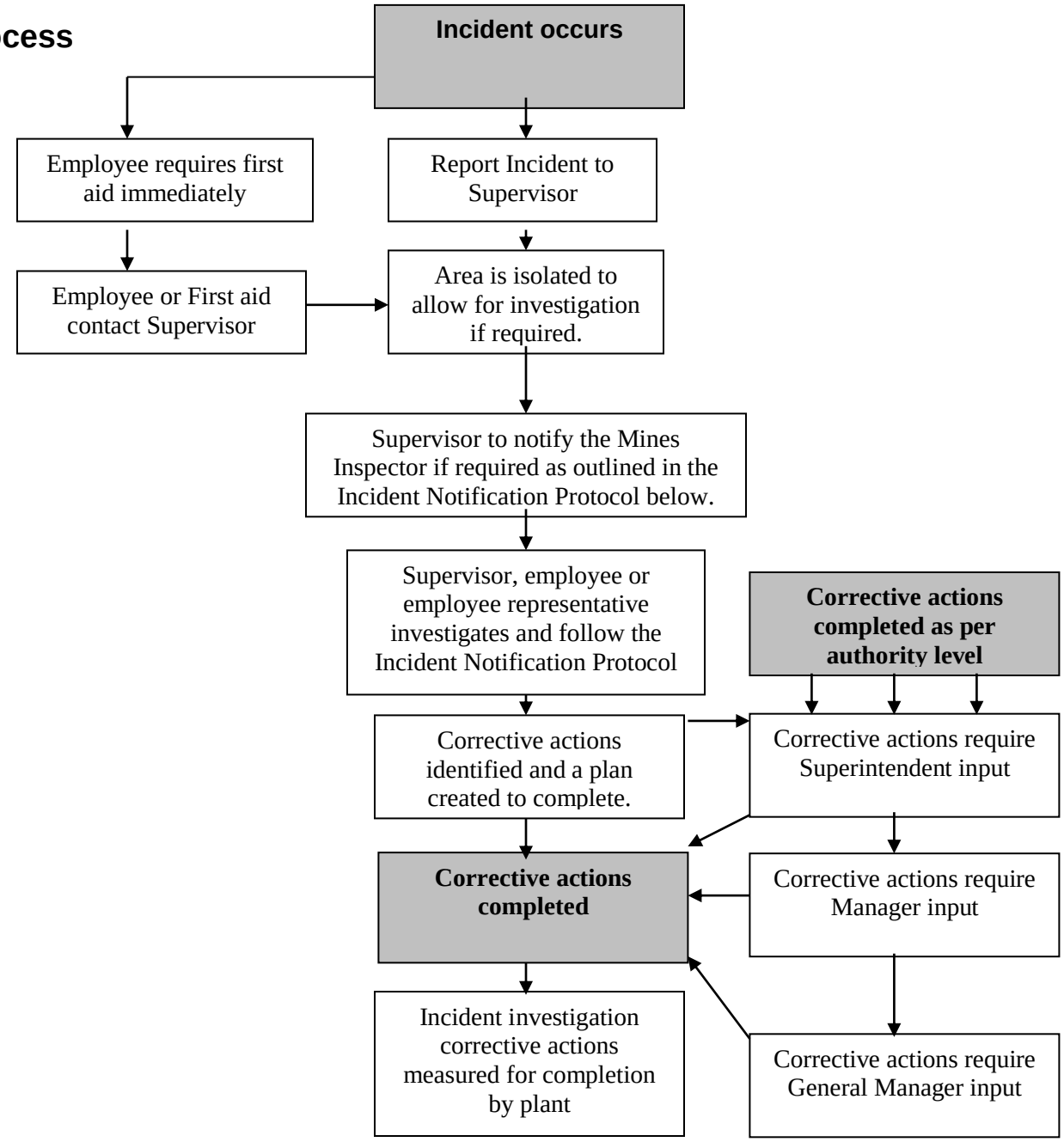
Safety Facilitators are expected to:

- Coach the line organization on effective utilization of the incident investigation process.
- Complete audits on the effectiveness of actions taken from incidents.

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

Process



STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

- An incident must be reported to the immediate supervisor forthwith.
- All injuries must be reported to First aid during the same shift.
- Vale Representatives in charge of Contract firms working on Vale property are accountable for using the same system.
- The Originator will initiate the preliminary reporting, and record it with the help of supervision or other resource person if required. Supervisors are required to input any key observations from an investigation.
- The preliminary report must include:

-Originators name
-Supervisors name

-Date and times of incident
-Date and times reported
-Plant, department and workplace
-Witness's names
-Incident or injury type
-Hazard classification
-Description of incident

Incident Notification Protocol (See appendix "A")

CATEGORY "A" Light/Low

Category "A" occurrences are any incident, near miss, condition or practice likely or certain to cause light/low harm such as an incident only requiring first aid.

- The supervisor will initiate an investigation of a category "A" incident. This will include the employee if available or other resource people as required. Any person investigating an incident can make the request for resource.
- The following guideline should be considered.
    - Inspect the incident site.
    - Investigate the situation
    - Establish and record the sequence of events
    - Record all the facts related to the incident
    - Identify the cause or contributing factors of the incident
    - Identify any underlying or root causes
    - Develop a recommendation or corrective action for each cause
- List all causes/ contributing factors on the Incident report
- List all recommendations and corrective actions on the Incident report.
- Each recommendation or corrective action must be assigned to an individual that is responsible for implementation.
- Practical timing must be established for each recommendation or corrective action.

- Each recommendation or corrective action must be followed up to ensure that it is effective in addressing the situation it was implemented for.

- The Incident report will now begin the approval process by the following people:

    - Supervisor
    - Superintendent
    - Worker Safety Representative/Originator (SHE Member assisted if required)
    - Manager

- The Incident report will be reviewed by those listed above. They will only approve after the following has been considered:

    - Have the contributing factors or root cause or causes been uncovered
    - Are the recommendations and/or corrective actions practical
    - Do they meet legislated requirements and Vale standards
    - Will they change something to make it less likely this type of incident will happen again

Could this type of incident happen to other working groups / department?

- By approving the report, the person signing is agreeing to all content of the report and that they agree with the corrective action and that the corrective action is complete.
- Any one who does not believe the above statement has been fulfilled should not approve the report. The processes identified in Appendix C are to then be followed.

CATEGORY “B” Moderate & “C” Serious

Category “B or C occurrences are any incident, near miss, condition or practice likely or certain to cause moderate or serious injury, illness, or property damage such as an incident causing a work restriction or absence.

- Follow the incident notification protocol established for your department.

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

- The incident site is to be secured to ensure that no person enters the site prior to the investigation team, "**nothing moves**". The investigation team will give notification when they are done with the site.

- A category "B or C" incident investigation will be the responsibility of the Superintendent and Worker Safety Rep. They will assign a joint investigation team and facilitate the investigation. The investigation will include all involved parties and any resource people required. Any person investigating an incident can make the request for resource people.

- The following guidelines should be considered.

    - Inspect the incident site.
    - Investigate the situation
    - Establish and record the sequence of events
    - Record all the facts related to the incident
    - Identify the cause or contributing factors of the incident
    - Identify any underlying or root causes
    - Develop a recommendation or corrective action for each root cause

- List all contributing factors/ causes on the Incident report

- List all recommendations and corrective actions on Incident report.

- Discuss the following:
    - Have the contributing factors or root cause or causes been uncovered?
    - Are the recommendations and/or corrective actions practical?
    - Do the recommendations meet legislated requirements and Vale standards?
    - Will the recommendations change a procedure, practice or process that makes a reoccurrence less likely?
    - Could this Incident affect other working groups/departments?
    - What level of authorization will be required to complete the recommended actions?

- Each recommendation or corrective action must be assigned to an individual that is responsible for implementation.

- Practical timing must be established for each recommendation or corrective action.

- Each recommendation or corrective action must be followed up to ensure that it is effective in addressing the situation it was implemented for.

- The Incident report will now begin the approval process by the following people:

    - Supervisor
    - Superintendent
    - Worker Safety Representative/Originator (SHE Member assisted if required) (Manager

- The Incident report will be reviewed by those listed above. They will approve after the following has been considered:
    - Have the contributing factors or root cause or causes been uncovered?
    - Are the recommendations and/or corrective actions practical?
    - Do they meet legislated requirements and Vale standards?
    - Will they change something to make it less likely this type of incident will happen again?
    - Could this type of incident happen to other working groups / departments?

- By approving the report, the person is agreeing to all content of the report and that they agree with the corrective action and that the corrective action is complete.
- Anyone who does not believe the above statement has been fulfilled should not approve the report. The processes identified in Appendix C is to then be followed.

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

CATEGORY "D" Critical or "E" Catastrophic

Category "D" or "E" " occurrences are any incident, near miss, condition or practice likely or certain to cause critical or catastrophic harm such as permanent disabling injury or a fatality. "

Follow the incident notification protocol (See appendix "A").

- Category "D" and "E"" incidents will be responsibility of the Department Manager and Worker Safety Rep. They will assign a joint investigation team and facilitate the investigation. The investigation will include all involved parties and any resource people as required. If the Mines Inspector and/or the R.C.M.P. are involved, they are to be cooperated with during the investigation. Any person investigating an incident can make the request for resource people.

The incident site is to be secured to ensure that no person enters the site prior to the investigation team, "**nothing moves**". The investigation team will give notification when they are done with the site.

- The advanced investigation system will be utilized unless the root causes are obvious. The final decision for the utilization of an Advanced Investigation must be in consultation with the Divisional Co-Chairs of Safety Health and Environment.

- If a condensed version of an Advanced Investigation is utilized (often referred to as a "Mini" or "condensed" Investigation), there must be at least one person on the investigation team that is trained in the Advanced Investigation process.

- The type and extent of investigation will be jointly decided on by the Department Manager or designate and the Department Worker Safety Rep in consultation with all stakeholders.

- The following guideline should be considered.

    - Inspect the incident site.

- Investigate the situation
- Establish and record the sequence of events
- Record all the facts related to the incident
- Identify the cause or causes of the incident
- Identify any underlying or root causes
- Develop a recommendation or corrective action for each cause

- List all contributing factors/ causes on the Incident report

- List all recommendations and corrective actions on Incident report.

- Each recommendation or corrective action must be assigned to an individual that is responsible for implementation.

- Practical timing must be established for each recommendation or corrective action.

- Each recommendation or corrective action must be followed up to ensure that it is effective in addressing the situation it was implemented for.

- The Incident report will now begin the approval process by the following people:

  - Supervisor
  - Superintendent
  - Worker Safety Representative/ Originator (SH&E Member assisted if required)
  - Manager
  - Respective management committee members to audit within three months of approval.

The Incident report will be reviewed by those listed above. They will approve after the following has been considered:

- Have the contributing factors or root cause or causes been uncovered?
- Are the recommendations and/or corrective actions practical?
- Do the recommendations meet legislated requirements and Vale standards?
- Will the recommendations change a procedure, practice or process that makes a reoccurrence less likely?
- Could this Incident affect other working groups/departments?
- What level of authorization will be required to complete the recommended actions?

- By approving the report, the person signing is agreeing to all content of the report and that they agree with the corrective action and that the corrective action is complete.
- Any one who does not believe the above statement has been fulfilled should not approve the report. The processes identified in Appendix C is to then be followed

CONTROLS

- Completed incident reports will be tracked as a measure/metric of the system functionality by individual plant management groups and divisionally as a whole by the SH&E Department.
- The Divisional Safety and Health Committee will audit the Incident Management system annually to assess its effectiveness.

COMPUTER RECORDING

- All investigation reports, pictures and action reports are to be attached to the incident report in the IM System.
- The SH&E Department will maintain a computer recording system to store the Incident Investigation data.
- Personal interviews for significant incidents will not be recorded into the IM System. These documents shall be sealed and forwarded to the safety department along with the investigation report and then sent to record storage.

- Output of the Computer Recording System will include:

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

- Night Letter
- Reports status
- Statistical Data
- Distribution of Incident report to other areas

Approved By	Title Vice President, Manitoba Operations
Date	

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

Appendix 'A'

Incident Notification Protocol **Updated: September 2015**

EVENT	Worker Safety Rep.	Safety Facilitator	Superintendent	Manager	Divisional Management On Call	Mines Inspector
"A" incident	office (message)	office (message)	office (message)			
"B&C" incident	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime		
"D&E" incident	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	Home/cell anytime
Lost Time injury	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	
Fire (no stench)	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	Home/cell anytime
Fire (stench)	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	Home/cell anytime
Work refusal	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	office (message)	
Unplanned hoist stoppage	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	office (message)	Home/cell anytime
Rockburst / Fall of ground	home / cell anytime	home / cell anytime	home / cell anytime	home / cell anytime	office (message)	Home/cell anytime

Mines Inspector Contact Info	Office	Cell
Joe Dobbin	204-677-6533	204-679-2944
Dan Steppan	204-687-1620	204-390-2008
Larry Poleschuk	204-945-8083	204-232-6224
Lorne Uruski	204-945-1233	204-792-6495
Ted Hewitt	204-687-1621	204-391-4069

Note:

1) Supervisor is to make initial call to the Worker Safety Rep & Superintendent

2) If an individual cannot be reached at home, leave a message on their work telephone call answering system

3) Telephone call to be made to individual as per the chart as soon as possible after an incident

Appendix 'B'

Vale Manitoba Operations Mines Reportable Incident & Near Miss Policy

(MANITOBA MINES REGULATION 212/2011)

Notice in cases of serious injury or incident

2.11(1) If an incident or dangerous occurrence occurs at a mine, the employer must notify a mines inspector and the committee.

(a) immediately, in the event of an incident or dangerous occurrence that results in

(i) loss of life to a person or an injury to a person that may reasonably be expected to cause or contribute to the person's loss of life, or

(ii) any of the following serious bodily injuries to a person:

(A) a fracture of the skull, spine, pelvis, arm, leg, hand or foot,
(B) amputation of an arm, leg, hand, foot, finger or toe,
(C) extensive second or third degree burns,
(D) permanent or temporary loss of sight,
(E) a serious internal hemorrhage,
(F) an injury resulting from electrical contact,
(G) an injury resulting in a person being rendered unconscious,
(H) an injury caused directly or indirectly by an explosive,
(I) any other injury likely to cause permanent disability; or

(b) within 24 hours of the happening of the incident or dangerous occurrence, in the event of

(i) an incident involving a hoist, sheave, hoisting rope, shaft conveyance, shaft, shaft timbering or head frame structure,

(ii) an inrush of water, slime or other wet material from old workings or otherwise,

(iii) a failure of an underground dam or bulkhead, as defined in section 16.1,

(iv) a fire below ground or a fire above ground if it endangers a worker or an entrance to the mine or causes the loss of or serious damage to a structure of at the mine,

(v) an electrical equipment failure or incident that causes or threatens to cause injury to a person or damage to major equipment or property,

(vi) a premature or unexpected explosion or ignition of explosives,
(vii) a dangerous or careless act involving explosives that is required to be reported under subsection 6.4(2),
(viii) an unexpected explosion resulting from contact between molten material and water or a deleterious substance as defined in section 10.1,
(ix) an atmospheric condition that results in asphyxiation involving partial or total loss of bodily control,
(x) an unusual gaseous condition in the workplace,
(xi) an unexpected or non-controlled subsidence or caving of the mine workings or a rock burst, being a natural and violent rupture of a volume of rock such that the release of energy can be detected as a distinct and abnormal seismic event,
(xii) an incident involving a crane,
(xiii) an incident involving powered mobile equipment that results or could have resulted in an injury to persons or serious property damage,
(xiv) an uncontrolled spill or escape of a hazardous substance or any other incident that requires reporting under The Dangerous Goods Handling and Transportation Act,
(xv) the collapse or structural failure of a building, structure, hoist, lift, temporary support system or excavation,
(xvi) failure of an air supplying respirator that places a worker at risk,
(xvii) loss of control of a remote controlled piece of equipment or robot, or
(xviii) a near miss.

Investigations: incidents and dangerous occurrences
2.12(1) An employer must, after reporting an incident or dangerous occurrence under section 2.11,

(a) facilitate the investigation and the report respecting the occurrence that are required under section 2.9 of the Workplace Safety and Health Regulation, Manitoba Regulation 217/2006; and
(b) ensure that the report is submitted to a mines inspector without undue delay and in no case more than seven working days after the incident or occurrence.

Maintenance of Scene

2.13(1) Except to the extent necessary to free a trapped person or to avoid the creation of an additional hazard, and subject to a directive issued under clause 24(1)(l) of the Act, no person shall, until authorized by a mines inspector, alter or move anything involved in or related to an incident or dangerous occurrence that is to be reported under section 2.11.

2.13(2) Before giving an authorization under subsection (1) for the purposes of permitting the work at the mine to proceed, the mines inspector must ensure that

(a) photographs or drawings showing the details of the scene of the incident are made before anything is moved; or

(b) an adequate investigation has been made by the employer and the committee.

NEAR MISS (MANITOBA MINES REGULATION 212/2011)

"Near Miss" means an incident that had the potential to cause serious bodily injury or illness to a worker, but no bodily injury or illness occurred as a result of the incident.

Protocol of a "Near Miss":

- **Employee(s) must "STOP" work immediately** in the event an incident occurs to determine if it is reportable, or not reportable to the mines inspector and Health & Safety Committee.
- **Secure the work area** to ensure no hazards or unsafe conditions are present, which can cause injury or illness to workers.
- **Notify supervisor and determine if near miss incident is Reportable.**

Criteria for determining if a "Near Miss" is reportable: refer to 2.11(1)(a)(b).

- Complete the IM Report Form.
- Complete the Mines Reportable Incident Form (MIR)

Note: Section 2.11(1)(a) references injury but not illness. Serious illness must be considered when there is a potential exposure to asbestos, lead, cadmium, bacteria, mold, etc., which may cause illness.

- **If a "Near Miss" is not reportable:** Complete the IM Report Form.

Example 1

A tank lid (there were 4 sections to the lid / quarter pieces) was being lifted into place on top of a 20' tank. The area below was roped off with signage to prevent workers from entering into the area below. Several employees were working together to place the lid on top of the tank. During the lift the lid was lowered on top of a handrail and obsolete plastic pipe line. A metal flange at the end of the pipe line broke off falling down to the area below. **As controls were in place (i.e. area roped off with signage) and workers were aware of the risk of potentially falling objects the incident is not considered reportable. If the area was not secured and the workers were unaware of the potential of objects falling down below, the incident would be reportable.**

Example 2

Pipefitters were working on top of a scaffold (3 lifts high) repairing a plastic pipe line. Tools and parts were placed on the top lift. Scaffold had toe boards in place and the area below was roped off with signage preventing any other workers from entering the area. At one point during the work the ropes and signage had been taken down and was laying on the floor to access material into the area. A worker not part of the job entered the area as a piece of metal fell from the top scaffold lift, nearly hitting the worker. **Even though controls were initially in place the roping off and signage failed to keep other workers from entering the area and the worker was unaware of the potential risk of injury from falling objects, which could have resulted in bodily injury. As a result this "Near Miss" would be reportable.**

STANDARD PROCEDURE INSTRUCTION

Title Incident Investigation		SPI #34-31
Department Safety Health and Environment	Supersedes SPI Date January 21, 2014	Effective Date March 29, 2016

Appendix 'C'

When anyone identified in the Approval of an IM Occurrence report does not agree with corrective actions, the following process is to be followed.

1. Corrective actions are reviewed by the Departmental JHSE Co-Chairs for possible resolution. If both agree on corrective actions, the report is reviewed with the employee with the concern who may still choose to agree/disagree. The Departmental Co-Chairs then approve. If there is no agreement on the corrective actions, then;
2. The concern is escalated to the Divisional Co-Chairs for possible resolution. If both agree on corrective actions, the report is reviewed with the employee with the concern and the Departmental JHSE Co-Chairs who may still choose to agree/disagree. The Divisional Co-Chairs then approve. If there is no agreement on the corrective actions, then;
3. The concern is escalated to the Manitoba Operations General Manager accountable for the area where the incident occurred and the United Steelworkers President, for possible resolution. If both agree on corrective actions, the report is reviewed with the employee with the concern, Departmental JHSE Co-Chairs, and Divisional Co-Chairs who may still choose to agree/disagree. Manitoba Operations General Manager accountable for the area where the incident occurred and the United Steelworkers President then approve. If there is no agreement on the corrective actions, the General Manager accountable for the area where the incident occurred may approve.